

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

5 Claims 1-114 (cancelled)

115. (currently amended): ~~The composition of Claim 114~~ A composition comprising a double D-loop, said double-D loop comprising:

a target nucleic acid;

10 a first single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said first single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid;

15 a second single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said second single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid; and

a locking complex formed by the central regions of said first and said second single stranded polynucleotides.

20 wherein said locking complex is a triplex or a quadruplex.

116. (previously presented): A composition comprising a double D-loop, said double D loop comprising:

a target nucleic acid;

25 a first single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said first single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid;

a second single stranded targeting polynucleotide comprising: a central region and

two flanking regions which flank the central region of said second single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid; and

a locking complex formed by the central regions of said first and said second single stranded polynucleotides,

wherein said locking complex comprises a triplex.

117. (previously presented): A composition comprising a double D-loop, said double D loop comprising:

a target nucleic acid;

a first single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said first single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid;

a second single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said second single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid; and

a locking complex formed by the central regions of said first and said second single stranded polynucleotides,

wherein said locking complex comprises a quadruplex.

118. (previously presented): A composition comprising a double D-loop, said double D loop comprising:

a target nucleic acid;

a first single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said first single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid;

a second single stranded targeting polynucleotide comprising: a central region and

two flanking regions which flank the central region of said second single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid; and

a locking complex formed by the central regions of said first and said second single stranded polynucleotides,

wherein said locking complex comprises Z-form duplex.

119. (cancelled)

120. (previously presented): A composition comprising a double D-loop, said double-D loop comprising:

a target nucleic acid;

a first single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said first single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid;

a second single stranded targeting polynucleotide comprising: a central region and two flanking regions which flank the central region of said second single stranded targeting polynucleotide and which form homology clamps with said target nucleic acid; and

a locking complex formed by the central regions of said first and said second single stranded polynucleotides,

wherein said locking complex comprises at least one non-Watson-Crick base pair.

121. (currently amended): A composition according to any one of Claims ~~114-120~~ 115, 116, 117, 118 or 120, further comprising at least one recombinase.

122. (previously presented): The composition of Claim 121 wherein said recombinase is a species of prokaryotic recombinase.

123. (previously presented): The composition of Claim 122, wherein said prokaryotic recombinase is a species of prokaryotic RecA protein.

124. (previously presented): The composition of Claim 123, wherein said RecA protein species is *E. coli* RecA.
125. (previously presented): The composition of Claim 121, wherein said recombinase is a species of eukaryotic recombinase.
- 5 126. (previously presented): The composition of Claim 125, wherein said recombinase is a Rad51 recombinase.
127. (previously presented): The composition of Claim 126, wherein said eukaryotic recombinase is a complex of recombinase proteins.
128. (previously presented): The composition of Claim 116 further comprising a
10 secondary polynucleotide that stabilizes said triplex.
129. (currently amended): The composition according to any one of Claims ~~114-120~~
115, 116, 117, 118 or 120, wherein said locking complex comprises DNA, RNA or
peptide nucleic acid.
130. (currently amended): The composition according to any one of Claims ~~114-120~~
15 115, 116, 117, 118 or 120, wherein at least one of said single stranded targeting
polynucleotides is linked to at least one non-protein chemical substituent.
131. (previously presented): The composition of Claim 130 wherein said substituent is
selected from the group consisting of intercalators, cross-linking moieties, labels,
photoactive moieties, nucleic acid scission inducing moieties, purification tag
20 moieties, and nucleic acid modification moieties.
132. (currently amended): The composition according to any one of Claims ~~114-120~~
115, 116, 117, 118 or 120, wherein at least one of said single stranded targeting
polynucleotides is linked to at least one protein substituent.
133. (currently amended): A cell comprising a composition according to any one of
25 Claims ~~114-120~~ 115, 116, 117, 118 or 120.

134. (previously presented): The cell of Claim 133 which is a eukaryotic cell.
135. (currently amended): The cell of Claim ~~122~~ 133 which is a prokaryotic cell.
136. (cancelled)
- 5 137. (currently amended): The kit according to Claim ~~136~~ 138 further comprising at least one recombinase.
138. (currently amended): ~~The kit according to Claim 136~~ A kit comprising a first and a second single stranded targeting polynucleotide, wherein said first and said second
10 targeting polynucleotides are substantially complementary to each other and further wherein said first and said second targeting polynucleotides each comprise:
a first and a second homology clamp that wherein said first and said second
homology clamps substantially correspond to or are substantially complementary to
a preselected target nucleic acid sequence; and
15 a locking nucleic acid sequence positioned between said first and said second
homology clamps wherein said locking nucleic acid sequence is capable of
stabilizing a locking complex in a double D-loop structure, wherein said locking
complex is a triplex or a quadruplex.
139. (cancelled)
- 20 140. (currently amended): The composition according to Claim ~~139~~ 141 further comprising at least one recombinase.
141. (currently amended): ~~The composition according to Claim 139~~ A composition
comprising a double D-loop comprising a target nucleic acid and a first and a
second single stranded targeting polynucleotide, wherein said first and said second
25 targeting polynucleotides are substantially complementary to each other and further
wherein said first and said second targeting polynucleotides each comprise:

5 a first and second homology clamp wherein said first and said second homology
clamps substantially correspond to or are substantially complementary to a
preselected target nucleic acid sequence; and
a locking nucleic acid sequence positioned between said first and said second
homology clamps wherein said locking nucleic acid sequence is capable of
stabilizing a locking complex in a double D-loop structure, wherein said locking
complex is a triplex or a quadruplex.

142. (currently amended): The composition according to Claim ~~139~~ 141 further
comprising a protein bound to said locking complex.

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